

THE GENUS ACANTHOSPERMUM (COMPOSITAE-  
HELIANTHEAE-MELAMPODINAE):  
TAXONOMIC CHANGES AND GENERIC AFFINITIES

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TAXONOMIC CHANGES

Blake (1921) listed eight good species in his revision of the genus *Acanthospermum*. One year later he himself added two more species to the genus, *A. brachyceratum* and *A. leptolobum*, both from the Galápagos Islands. Another earlier described species, *A. lecocarpoides* (Robinson and Greenman, 1895), was also from these same islands. The genus has stood unchanged with 10 species until just recently Cronquist and Stuessy (*in* Cronquist, 1969) removed the Galápagos species into the related genus *Lecocarpus* based upon total morphology (see Cronquist, 1969, for additional information regarding *Lecocarpus* and these transfers). In the present study based on herbarium material of *Acanthospermum*,<sup>2</sup> *A. donii* is treated as being conspecific with *A. microcarpum* which further reduces the number of species to six. Of the three sections of the genus recognized by Blake (1921), section *Lecocarpopsis* is now defunct due to removal of the Galápagos species. The following list includes the presently recognized taxa and correct sectional placements:

Section *Ceratochlaena* DC.

*A. hispidum* DC

*A. humile* (Sw.) DC. (photograph of B isotype, TEX!)

*A. microcarpum* Rob. (holotype, GH!)

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<sup>2</sup>Appreciation is expressed to the curators of the following herbaria from which loans of specimens were made (abbreviations after Lanjouw and Stafleu, 1964): ARIZ, F, GH, MICH, NY, SMU, TEX, UC, UPS, US.

*A. simile* Blake (isotypes, F! NY[2]!; frag. of BM holotype, GH!; photograph of holotype, GH!; photograph of holotype and frag. of K isotype, US!; photograph of F isotype, F!)

Section *Acanthospermum* (Section *Xanthoides* DC.)

*A. australe* (Loefl.) Kuntze

*A. consobrinum* Blake (frag. of BM holotype, GH!; photograph of holotype, US!).

Blake's sectional characters, key to species, descriptions, and synonymy for these remaining six species of the genus are adequate and are not duplicated here.

Both *Acanthospermum donii* Blake (type probably from Ecuador; frag. of BM holotype, GH!; photograph of holotype, US!) and *A. microcarpum* (type from Galápagos Is.) are known from only a very few collections. After examining available material, I consider the fruit<sup>3</sup> differences (mainly size), emphasized by Blake as specific criteria, to be intergrading and of trivial taxonomic significance. This inclusion removes *A. microcarpum* from the numbers of endemic Galápagos Is. species.

#### GENERIC AFFINITIES

There are three genera in the Compositae (all subtribe Melampodiinae) that possess vascularized inner involucre bracts each tightly enclosing and fused with a single ray achene: *Acanthospermum*, *Lecocarpus*, and *Melampodium*. Bentham (1873) felt that both "The east tropical *Acanthospermum* and the Galapagian *Lecocarpus* might be included in the widely spread *Melampodium*" (p. 434). As already mentioned, there has been some misunderstanding of the generic limits of *Acanthospermum* and *Lecocarpus*, but *Acanthospermum* and *Melampodium* rarely have been confused. Despite similarities the 3 genera can be distinguished as follows (in part after Bentham and Hooker, 1873, and Hoffman, 1890):

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<sup>3</sup>"Fruit" is defined as the ray achene and the enclosing inner involucre bract (Robinson, 1901).

*Melampodium*

(1) Fruit apex hooded or not hooded, sides smooth to tuberculate.

(2) Leaves entire to variously lobed.

(3) Organs only rarely glandular.

(4) Plants annual herbs or suffruticose perennials.

(5) Distribution mainly in Mexico and Central America.

*Acanthospermum*

(1) Fruit apex not hooded, sides with straight or hooked prickles.

(2) Leaves entire to variously lobed.

(3) Organs aglandular.

(4) Plants annual herbs.

(5) Distribution mainly in North and South America (introduced to Old World), one non-endemic species on Galápagos Is. (*A. microcarpum*).

*Lecocarpus*

(1) Fruit apex rimmed with a broad wing or with one to several long prickles, sides smooth.

(2) Leaves markedly pinnatifidly cleft or divided.

(3) Organs markedly glandular.

(4) Plants shrubby perennials (annuals?).

(5) Distribution restricted to Galápagos Is.

The classical distinction between *Melampodium* and *Acanthospermum* has been based mainly on fruits without prickles versus the prickled condition, respectively. However, there is one *Melampodium* species, *M. longifolium*, that possesses "horns" (enlarged apical extensions of the enclosing bract) similar to the apical prickles of *A. simile* and *A. microcarpum*. Nevertheless, this character serves with other characters to successfully delimit the two genera.

*Melampodium* has been surveyed extensively for chromosome numbers (for a review see Stuessy, 1969) and  $n = 10$  is found in the largest number of species in the genus. The few reported counts of *Acanthospermum* are  $n = 10^4$  and  $n = 11^5$ ; these support the presumed close phyletic relation-

<sup>4</sup>*A. australe*, Carlquist (1954).

<sup>5</sup>*A. hispidum*, Miège (1960, reported as  $2n = 22$ ); *A. australe*, Turner and Irwin (1960) and Coleman (1968).

ship of the two genera. Cytological information regarding *Lecocarpus* is lacking.

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